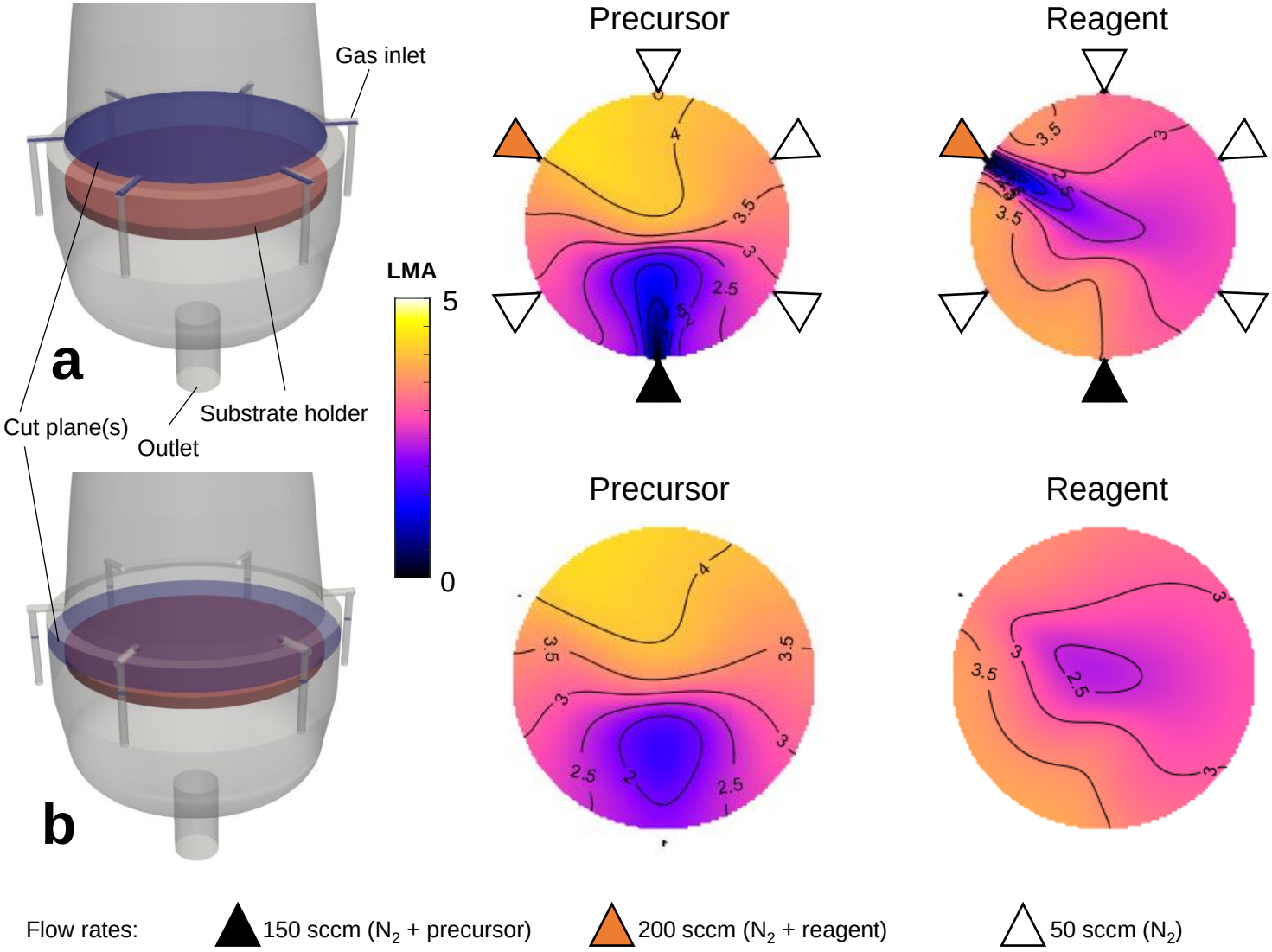

Figure 1: Local mean age (LMA) distribution of precursor and reagent, calculated 33 mm (height of gas inlets, a) and 10 mm (b) above the substrate holder, respectively. Due to the larger massflow of the reagent carrier gas, the precursor is obstructed from efficiently reaching the opposite side of the chamber.

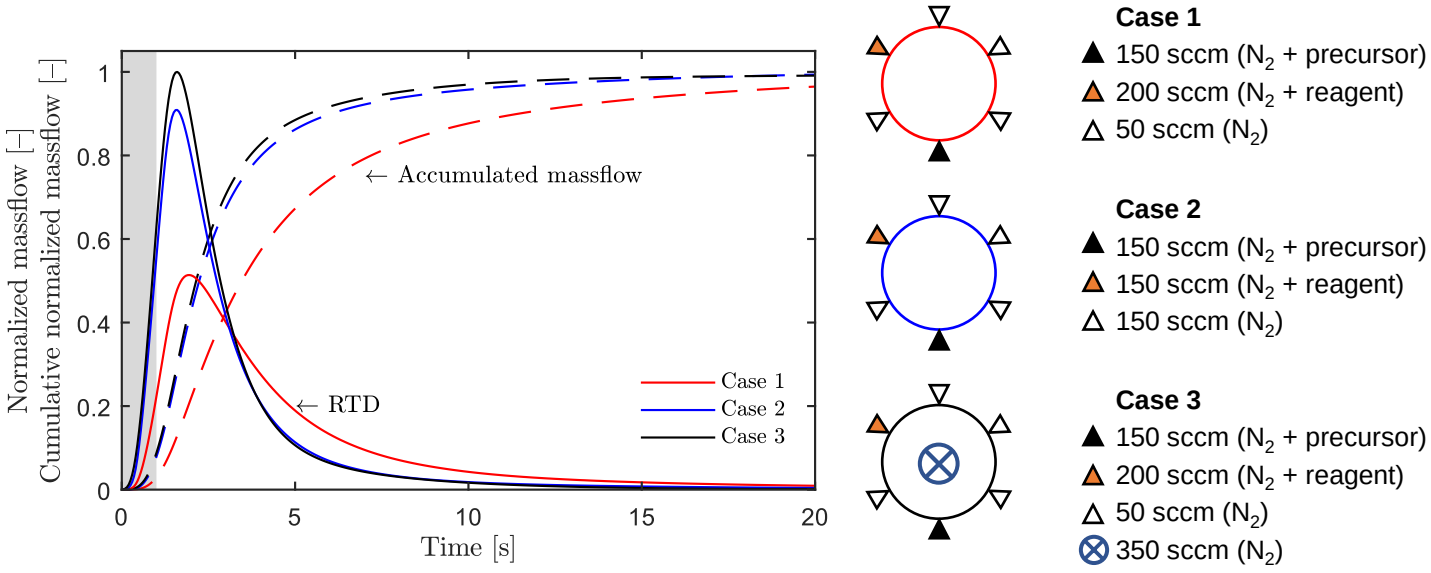

Figure 2: Residence time distribution (RTD, solid lines) and accumulated massflow (dashed) of precursor during a half-cycle, given a 1 s pulse time (indicated as grey area). Total flow rates are 500 sccm (Case 1), 900 sccm (Case 2), and 900 sccm (Case 3). Case 1 is also shown in Fig. 1, while Case 2 has an equal flow rate distribution over the six inlet channels, and Case 3 has an added flow perpendicular to the substrate.